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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/909,412	07/19/2001	Bruce B. Gamble	05770-154001 / ASC-537	7296

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09/20/2002

FRANK R. OCCHIUTI
Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804

EXAMINER

LE, DANG D

ART UNIT

PAPER NUMBER

2834

DATE MAILED: 09/20/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/909,412

Applicant(s)

GAMBLE ET AL.

Examiner

Dang D Le

Art Unit

2834

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____.

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "non-cryogenic region and cryogenic region" in claims 1, 25, and 36 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 1-36 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The specification and drawings do not clearly show the "non-cryogenic region and cryogenic region" claimed in claims 1, 25 and 36. As a result, it is not known how the cantilevered member is extending between the two mentioned regions.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-8, 11, 12, 14-16, 25-30, 32, 33, 35 and 36 are rejected under 35 U.S.C. 102(b) as being anticipated by Gamble.

Regarding claim 1, Gamble shows a rotor assembly (see Figure) configured to rotate within a stator assembly (19) of a rotating machine having a shaft (13) disposed within a non-cryogenic region (outside housing 20) of the rotor assembly, the rotor assembly comprising:

- At least one superconducting winding assembly (15) positioned within a cryogenic region of the rotor assembly, the at least one superconducting winding assembly, in operation, generating a magnetic flux linking the stator assembly; and
- A cantilevered member (27 and 36-38), mechanically coupled between the at least one superconducting winding assembly (15) and the shaft, the cantilevered member extending between the non-cryogenic region and cryogenic region of the rotor assembly.

Regarding claims 25 and 36, these claims are similar to claim 1 above. Consequently, they are also rejected.

Regarding claims 2 and 26, it is noted that Gamble also shows the cantilevered member being positioned between the superconducting winding and the shaft.

Regarding claim 3, it is noted that Gamble also shows the cantilevered member being positioned in a radial space (26) between the superconducting winding and the shaft.

Regarding claims 4 and 27, it is noted that Gamble also shows the cantilevered member extending along a longitudinal axis of rotor assembly.

Regarding claims 5 and 28, it is noted that Gamble also shows the cantilevered member having a length sufficient for providing substantial thermal isolation between the at least one superconducting winding and the shaft.

Regarding claims 6 and 29, it is noted that Gamble also shows a support member (37) for supporting the at least one superconducting winding assembly.

Regarding claim 7, it is noted that Gamble also shows the cantilevered member and support member being formed of the same material.

Regarding claims 8 and 30, it is noted that Gamble also shows the cantilevered member being metal.

Regarding claims 11 and 32, it is noted that Gamble also shows a high permeability member positioned within the internal volume and between the shaft and the at least one superconducting winding.

Regarding claims 12 and 33, it is noted that Gamble also shows a high permeability member positioned between the shaft and the support member.

Regarding claim 14, it is noted that Gamble also shows the cantilevered member including a bumper adapted to contact the shaft when the rotor assembly is subjected to transverse shock

Regarding claim 15, it is noted that Gamble also shows the cantilevered member being mechanically coupled to the support member with a weld joint.

Regarding claim 16, it is noted that Gamble also shows the at least one superconducting winding assembly comprising a high temperature superconductor.

Regarding claim 35, it is noted that Gamble also shows the rotating machine having a power characteristic of greater than 2 Mwatts.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 9, 10, 13 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gamble in view of Litz.

Regarding claims 9 and 31, Gamble shows all of the limitations of the claimed invention except for the metal comprising Inconel.

Litz shows the metal comprising Inconel for the purpose of increasing strength.

Since Gamble and Litz are all from the same field of endeavor; the purpose disclosed by one inventor would have been recognized in the pertinent art of the others.

It would have been obvious at the time the invention was made to a person having ordinary skill in the art to use the metal comprising Inconel as taught by Litz for the purpose discussed above.

Regarding claim 10, it is noted that Litz also shows the material comprising a composite material.

Regarding claim 13, it is noted that Litz also shows a plurality of spokes, each spoke mechanically radially fixing the cantilevered member to the shaft.

9. Claims 17-24 and 34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gamble.

Regarding claims 17-24 and 34, Gamble shows all of the limitations of the claimed invention except for the cantilevered member formed of a material having an elongation characteristic of at least 10%, the cantilevered member formed of a material having a yield strength characteristic of at least 50 ksi, the cantilevered member formed of a material having a stiffness ratio less than 20 nanoW*M/N, the cantilevered member formed of a material having a strength ratio less than 5 microW*M/N, speeds of less than 900 rpm, a 25 Mwatt rating, the cantilevered member having a length in a range

between 1200 and 1600 mm and the cantilevered member having a length of approximately 1390 mm.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to make a rotor assembly with the aforementioned characteristics, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges or an optimum value of a result effective variable involves only routine skill in the art. In re Aller, 105 USPQ 233 and In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Information on How to Contact USPTO

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dang D Le whose telephone number is (703) 305-0156. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308-1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

DDL
September 18, 2002

DL

Dang D Le